

IN THE CLAIMS

Claim 1 has been amended as follows:

1. (Currently amended) An x-ray tube comprising:
a stationary vacuum housing having a central axis;
an electron-emitting cathode and a ring electrode anode having an impact surface disposed in said vacuum housing;
a deflection system disposed in said vacuum housing for interacting with electrons emitted by said cathode to focus and deflect said electrons to form an electron beam which is incident on said impact surface to generate x-rays;
a round exit window for said x-rays disposed in a plane perpendicular to the central axis and terminating one side of said vacuum housing;
said ring anode having a primarily triangular cross-section in a plane containing said electron beam, with a long side and a short side, said short side being directed toward said exit window and said impact surface being disposed on said short side, and said impact surface of said ring anode being beveled and aligned to said exit window; and
an annular anode cooling arrangement surrounding said ring anode at an exterior of said vacuum housing.
2. (Original) An x-ray tube as claimed in claim 1 further comprising a diaphragm disposed at said exit window at said vacuum housing defining a circular opening for passage of said x-rays therethrough.

Claim 3 has been amended as follows:

3. (Currently amended) An x-ray tube as claimed in claim 1 wherein said vacuum housing comprises an isolator ~~connected to~~ at least partially surrounding said cathode and a piston part connected to said isolator, said piston part having an expanded portion in which said ring anode is disposed and having said side terminated by said exit window.

4. (Original) An x-ray tube as claimed in claim 1 wherein said deflection system is a quadruple magnet system.

Cancel claim 5.

5. (Cancelled)

Claim 6 has been amended as follows:

6. (Currently amended) An x-ray tube as claimed in claim ~~5~~ 10 wherein said impact surface has a center point disposed outside of said ring anode.

Cancel claim 7.

7. (Cancelled)

Claim 8 has been amended as follows:

8. (Currently amended) An x-ray system comprising:

an x-ray tube comprising a stationary vacuum housing having a central axis, an electron-emitting cathode and a ring ~~electrode~~ anode having an impact surface disposed in said vacuum housing, a deflection system disposed in said vacuum housing for interacting with electrons emitted by said cathode to focus and deflect said electrons to form an electron beam which is incident on said impact surface to generate x-rays, a round exit window for said x-rays disposed in a plane perpendicular to the central axis and terminating one side of said vacuum housing, said

ring anode having a primarily triangular cross-section in a plane containing said electron beam, with a long side and a short side, said short side being directed toward said exit window and said impact surface being disposed on said short side, and said impact surface of said ring anode being beveled and aligned to said exit window, and an annular anode cooling arrangement surrounding said ring anode at an exterior of said vacuum housing;

a radiation detector ~~matrix~~, said x-ray tube being oriented relative to said radiation detector matrix so that said x-rays exiting through said exit window are incident on said radiation detector ~~matrix~~; and

a slit diaphragm disposed in a path of said x-rays between said x-ray tube and said radiation detector ~~matrix~~.

Claim 9 has been amended as follows:

9. (Currently amended) An x-ray system comprising:

an x-ray tube comprising a stationary vacuum housing having a central axis, an electron-emitting cathode and a ring ~~electrode~~ anode having an impact surface disposed in said vacuum housing, a deflection system disposed in said vacuum housing for interacting with electrons emitted by said cathode to focus and deflect said electrons to form an electron beam which is incident on said impact surface to generate x-rays, a round exit window for said x-rays disposed in a plane perpendicular to the central axis and terminating one side of said vacuum housing, said ring anode having a primarily triangular cross-section in a plane containing said electron beam, with a long side and a short side, said

short side being directed toward said exit window and said impact surface being disposed on said short side, and said impact surface of said ring anode being beveled and aligned to said exit window, and an annular anode cooling arrangement surrounding said ring anode at an exterior of said vacuum housing;

a radiation detector, said x-ray tube being oriented relative to said radiation detector so that x-rays exiting through said exit window are incident on said radiation detector; and

a depth diaphragm disposed in a path of said x-rays between said x-ray tube and said radiation detector matrix, said depth diaphragm having a plurality of slits, and wherein said deflection system in said x-ray tube deflects said electron beam relative to said impact surface to produce a plurality of beam fans, said depth diaphragm having a plurality of slits through which said beam fans respectively pass, and strike respective detector lines of said radiation detector.

10. (New) An x-ray tube comprising:

a stationary vacuum housing having a central axis;

an electron-emitting cathode and a ring anode having an impact surface disposed in said vacuum housing;

a deflection system disposed in said vacuum housing for interacting with electrons emitted by said cathode to focus and deflect said electrons to form an electron beam which is incident on said impact surface to generate x-rays;

a round exit window for said x-rays disposed in a plane perpendicular to the central axis and terminating one side of said vacuum housing;
said impact surface of said ring anode having a cross-section in a plane containing said electron beam primarily formed as a circular arc, and said impact surface of said ring anode being beveled and aligned to said exit window; and
an annular anode cooling arrangement surrounding said ring anode at an exterior of said vacuum housing.

11. (New) An x-ray tube as claimed in claim 10 further comprising a diaphragm disposed at said exit window at said vacuum housing defining a circular opening for passage of said x-rays therethrough.

12. (New) An x-ray tube as claimed in claim 10 wherein said vacuum housing comprises an isolator at least partially surrounding said cathode and a piston part connected to said isolator, said piston part having an expanded portion in which said ring anode is disposed and having said side terminated by said exit window.

13. (New) An x-ray tube as claimed in claim 10 wherein said deflection system is a quadruple magnet system.

14. (New) An x-ray system comprising:

an x-ray tube comprising a stationary vacuum housing having a central axis, an electron-emitting cathode and a ring anode having an impact surface disposed in said vacuum housing, a deflection system disposed in said vacuum housing for interacting with electrons emitted by said cathode to focus and deflect said electrons to form an electron

beam which is incident on said impact surface to generate x-rays, a round exit window for said x-rays disposed in a plane perpendicular to the central axis and terminating one side of said vacuum housing, said impact surface of said ring anode having a cross-section in a plane containing said electron beam primarily formed as a circular arc, and said impact surface of said ring anode being beveled and aligned to said exit window, and an annular anode cooling arrangement surrounding said ring anode at an exterior of said vacuum housing;

a radiation detector matrix, said x-ray tube being oriented relative to said radiation detector matrix so that said x-rays exiting through said exit window are incident on said radiation detector matrix; and

a slit diaphragm disposed in a path of said x-rays between said x-ray tube and said radiation detector matrix.

15. (New) An x-ray tube as claimed in claim 14 wherein said impact surface has a center point disposed outside of said ring anode.

16. (New) An x-ray system comprising:

an x-ray tube comprising a stationary vacuum housing having a central axis, an electron-emitting cathode and a ring anode having an impact surface disposed in said vacuum housing, a deflection system disposed in said vacuum housing for interacting with electrons emitted by said cathode to focus and deflect said electrons to form an electron beam which is incident on said impact surface to generate x-rays, a round exit window for said x-rays disposed in a plane perpendicular to the central axis and terminating one side of said vacuum housing, said

impact surface of said ring anode having a cross-section in a plane containing said electron beam primarily formed as a circular arc, and said impact surface of said ring anode being beveled and aligned to said exit window, and an annular anode cooling arrangement surrounding said ring anode at an exterior of said vacuum housing;

a radiation detector, said x-ray tube being oriented relative to said radiation detector so that x-rays exiting through said exit window are incident on said radiation detector; and

a depth diaphragm disposed in a path of said x-rays between said x-ray tube and said radiation detector matrix, said depth diaphragm having a plurality of slits, and wherein said deflection system in said x-ray tube deflects said electron beam relative to said impact surface to produce a plurality of beam fans, said depth diaphragm having a plurality of slits through which said beam fans respectively pass, and strike respective detector lines of said radiation detector.

17. (New) An x-ray tube as claimed in claim 15 wherein said impact surface has a center point disposed outside of said ring anode.